

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

Claims 1-17 (cancelled).

18. (currently amended): A method of surface polishing of at least one principal surface of an optical article made from transparent thermoplastic material comprising the successive steps of:

grinding;

fine grinding; and

polishing;

wherein the fine grinding and/or the polishing comprises attacking the principal surface of the article with a solvent or a mixture of organic solvents of the transparent thermoplastic material.

19. (previously presented): The method of claim 18, wherein polishing comprises attacking the principal surface of the article with a solvent or a mixture of organic solvents of the transparent thermoplastic material.

20. (previously presented): The method of claim 18, wherein the attacking comprises centrifugation of the solvent or mixture of solvents on the principal surface of the article.

21. (previously presented): The method of claim 20, wherein the attacking is further defined as comprising a radial disposition of the solvent or mixture of solvents on the principal surface.

22. (previously presented): The method of claim 21, wherein the radial deposition takes place from the center to the edge of the article.

23. (previously presented): The method of claim 18, wherein the attacking is performed by contacting the principal surface with a vapor of the solvent or mixture of solvents.
24. (previously presented): The method of claim 23, wherein the vapor is produced by heating the solvent or mixture of solvents.
25. (previously presented): The method of claim 24, wherein the solvent or mixture of solvents is heated to its boiling point.
26. (previously presented): The method of claim 25, wherein the optical article is heated to a temperature lower than the boiling point of the solvent or mixture of solvents.
27. (previously presented): The method of claim 23, wherein the contacting of the principal surface with the vapor of the solvent or mixture of solvents comprises saturation with the vapor of the solvent or mixture of solvents.
28. (previously presented): The method of claim 27, wherein the solvent vapor is at ambient temperature.
29. (currently amended): The method of claim 18, wherein attacking comprises both an attacking by centrifugation of the solvent or the mixture of organic solvents and an attacking with a vapor phase of the solvent or mixture of organic solvents.
30. (currently amended): The method of claim 29, wherein the attacking by centrifugation of the solvent or mixture of organic solvents occurs before the attacking with a vapor phase of the solvent or mixture of organic solvents.
31. (currently amended): The method of claim 29, wherein the attacking by centrifugation of the solvent or mixture of organic solvents follows the attacking with the vapor phase of the solvent or mixture of organic solvents.

32. (previously presented): The method of claim 18, wherein the solvent is selected from the group consisting of dichloromethane, the dichloroethanes, acetone, methyl ethyl ketone, trichloromethane, THF and dioxane.

33. (previously presented): The method of claim 18, wherein the transparent thermoplastic material is polycarbonate.

34. (previously presented): The method of claim 18, wherein the optical article is further defined as a spectacle lens.

A Response to the Office Action Dated January 2, 2004:

A. Status of the Claims

Claims 18-34 were pending at the time of the Action. Claims 18 and 29-31 have been amended. Support for these new claims can be found throughout the specification and the claims as originally filed. Claims 18-34 therefore are currently pending.

B. The Indefiniteness Rejection Is Improper

The Action rejects claims 18-34 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Action contends that claim 18 “should be clearly set forth that the surface polishing comprises the steps of grinding followed by a fine grinding and/or polishing” The Action, page 2. The Action also requests that claims 29-31 be amended by including the language “of the solvent or mixture of solvents” after the terms “centrifugation” and “vapor phase,” respectively.

Applicants traverse this rejection. Claims 18-34, as previously presented, satisfied all of the requirements of 35 U.S.C. § 112, second paragraph.

A person of ordinary skill in the art would understand what is claimed when viewing the claims in light of the present specification. *See Morton International, Inc. v. Cardinal Chemical Co.*, 5 F.3d 1464 (Fed. Cir. 1993) (“Whether a claim is invalid for indefiniteness requires a determination whether those skilled in the art would understand what is claimed when the claim is read in light of the specification.”). However, in the interest of furthering the prosecution of this case and to further put the present claims into a condition for allowance, claims 18 and 29-31 have been amended as suggested by the Action.

The present indefiniteness rejection is therefore rendered moot and should be withdrawn.

C. The Obviousness Rejection Is Improper

1. A Summary of the Rejection, the Standard for Establishing a *Prima Facie* Case of Obviousness, and A Summary of the Invention

i. *A summary of the rejection.*

The Action rejects claims 18-34 under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 4,376,751 to Duchane. The Action contends that this reference discloses that articles such as lenses can be made “super smooth” by a solvent polishing. The Action, page 2. The Action also states that the use of a grinding process to prepare a smooth surface on plastic articles is known in the art. *Id.* at pages 2-3. From this, the Action reasons—without presenting any evidence (either extrinsic or intrinsic)—that it would have been obvious to one of ordinary skill to combine both processes. *Id.* at page 3.

The Action also appears to take the position that the processes of fine grinding and polishing “are apparently the same.” *Id.* at page 2. This is incorrect. As explained below, Applicants’ specification clearly teaches that the steps of fine grinding and polishing include different procedures. The specification, page 1, line 18, to page 2, line 4.

ii. *The standard for establishing a prima facie case of obviousness.*

It is well settled that “[t]he examiner bears the initial burden of factually supporting any *prima facie* case of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under **no** obligation to submit evidence of nonobviousness.” *Manual of Patent Examining Procedure* (MPEP) § 2142 (8th Ed. Inc. Rev. No. 1) (emphasis added).

To establish a *prima facie* case of obviousness, the Action must show: (1) some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) a reasonable expectation of success; and (3) the prior art reference teaches or

suggests all of the claim limitations. *Id.*; see also *In re Vaeck*, 947 F.2d 488, (Fed Cir. 1991). With respect to element (1), “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” MPEP at § 2143.01. If any one of the three elements is missing, an obviousness rejection cannot be maintained.

iii. A summary of the present invention.

Applicants presently claim “A method of surface polishing of at least one principal surface of an optical article made from transparent thermoplastic material comprising the successive steps of: grinding; fine grinding; and polishing; wherein the fine grinding and/or the polishing comprises attacking the principal surface of the article with a solvent or a mixture of organic solvents of the transparent thermoplastic material.” Claim 18.

As discussed in the following sections, the Action fails to present any evidence establishing a *prima facie* case of obviousness. The cited art fails to teach every element of the present invention. There is no motivation to modify or combine the cited art, and the Action cites to no evidence that establishes a reasonable expectation of success that such modification or combination would work.

The present obviousness rejection should be withdrawn for at least these reasons and the present claims should be allowed to proceed to issuance.

2. The Action has not Presented Any Evidence to Support the Obviousness Rejection

The Action fails to present any evidence that Duchane or any other art teaches or suggests the use of fine grinding to polish at least one principal surface of an optical article—much less “the successive steps of: grinding; fine grinding; and polishing.” The Action’s position that the processes of fine grinding and polishing “are apparently the same” is also

unfounded and not supported by any evidence. Applicants' specification clearly teaches that the steps of fine grinding and polishing include different procedures. The specification, page 1, line 18, to page 2, line 4.

The Action's opinion that it would have been obvious to a person of ordinary skill in the art to combine a "diamond knife machining, or grinding" process with the polishing process disclosed in Duchane also lacks foundation. The Action cites to no passages in the cited reference that supports such a contention. There is no citation to any additional references or any other evidence (either extrinsic or intrinsic) to support this position.

Based on the lack of evidence alone, the present obviousness rejection must fall. See MPEP § 2142 ("The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under ***no obligation*** to submit evidence of nonobviousness"). If the Action is relying on personal knowledge or any other evidence to support its current position, Applicants must request that the Action prepare an affidavit and enter it into the file history of this application pursuant to 37 C.F.R. § 1.104(d)(2) and MPEP § 2144.03(C).

Because the Action has not met its initial burden of presenting evidence to support a *prima facie* case of obviousness, the present obviousness rejection cannot be maintained and should therefore be withdrawn.

3. A *Prima Facie* case of Obviousness has not Been Established by the Action

i. Every element of the presently claimed invention is not taught or suggested by the cited art.

In order to establish a *prima facie* case of obviousness, the cited art must teach every element of the present invention. See MPEP § 2142. This has not been established by the Action.

Applicants presently claim “[a] method of surface polishing of at least one principal surface of an optical article . . . comprising the successive steps of: grinding; fine grinding; and polishing . . .” Claim 18.

In contrast to Applicants’ claimed invention, Duchane apparently obtains a “super-smooth” article by “immersing at least a portion of the article into a bath consisting essentially of (1) at least one solvent for the thermoplastic material, (2) at least one nonsolvent for the thermoplastic material, and (3) optionally accessory material which is soluble in the bath and which one may wish to deposit into the thermoplastic material. . . .” Duchane, col. 3, lines 23-29. There does not appear to be any teaching or suggestion in Duchane to use a fine grinding process to polish at least one principal surface of an optical article—much less the use of a combination of “the successive steps of: grinding; fine grinding; and polishing.”

The Action’s position that the processes of fine grinding and polishing “are apparently the same” is incorrect. Applicants’ specification teaches that the steps of fine grinding and polishing include different procedures. *See, e.g.*, the specification, page 1, line 18, to page 2, line 4. This is strong evidence that fine grinding and polishing include different procedures and that the art relied upon to support the present rejection does not teach or suggest this element, much less the combination of “the successive steps of: grinding; fine grinding; and polishing.”

The art relied upon by the Action fails to disclose every element of the presently claimed invention—a necessary requirement to establish a *prima facie* case of obviousness. Because of this, the obviousness rejection of claims 18-34 cannot be maintained and should be withdrawn.

ii. There is no motivation to modify or combine the teachings of Duchane with the knowledge of a person of ordinary skill in the art.

A second element necessary to establish a *prima facie* case of obviousness requires a showing by the Action that there is a motivation to modify or combine the teachings of Duchane with the knowledge of a person of ordinary skill in the art. This has not been done by the Action.

The Action's contention that "one of ordinary skill in the art would have found doing both as obvious, the grinding to bring the lens surface to the approximate smoothness and surface shape desired followed by solvent treatment to obtain a lens of super smooth surface" is not supported by any evidence. *See*, section 2, above; *see also* MPEP § 2143.01 ("The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.").

The cited reference, in fact, appears to teach away from the desirability of such a combination. *See In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994); *see also* MPEP § 2145 ("A prior art reference that 'teaches away' from the claimed invention is a significant factor to be considered in determining obviousness . . ."). In discussing the diamond knife grinding process (a mechanical process), Duchane explains the inefficiencies and difficulties associated with this process. *See* Duchane, col. 1, lines 34-54. In one instance, Duchane even states that it is difficult to produce a super-smooth surface by mechanical means such as diamond knife grinding:

However, producing such a [super smooth] surface is very expensive, the surfaces invariably have machining ridges (which can be viewed at 1600X) left by the tooling; and in order to produce small articles by such a method, special equipment would be required for holding the articles while they are being machined. *Furthermore, it is difficult to produce super-smooth surface finishes on polymers by mechanical means* because heat produced by frictional processes is dissipated much more slowly by plastics than by metals or glass, and the lower softening points of these materials often result in gumming and poor finish control . . .

Id. at lines 41-52 (emphasis added). Duchane actually compares the grinding process and polishing process without suggesting that they could be combined:

In an especially preferred embodiment, the thermoplastic material is acrylic (i.e., poly(methyl methacrylate)), the solvent is acetone, and the nonsolvent is a particular mixture of water and a polyethylene glycol having a particular molecular weight. Using this combination, extremely smooth rounded or formed surfaces were obtained which had very few imperfections and no visible machining marks when viewed at a magnification of up to 1600.times. (*unlike the smoothest prior art rounded or formed surfaces of thermoplastic material, which were obtained by diamond knife machining*).

Id. at col. 3, lines 42-52 (emphasis added).

There does not appear to be any teachings in Duchane or in the prior art of the desirability to combine machine processes with polishing processes. Duchane appears to teach that such a combination is not desirable. Because of this, a second element necessary to establishing a *prima facie* case of obviousness has not been established. The obviousness rejection of claims 18-34 should therefore be withdrawn.

iii. There is no reasonable expectation of success that modifying Duchane to include Applicants' claimed invention would work.

A third element necessary to establish a *prima facie* case of obviousness requires a showing of a reasonable expectation of success that modifying the teachings of Duchane to use “the successive steps of: grinding; fine grinding; and polishing” would work. Similar to the other three required elements, this has not been shown.

Applicants’ specification provides surprising and unexpected data showing that the “the successive steps of: grinding; fine grinding; and polishing” works. *See, e.g.*, the Specification, page 12, line 30, to page 14, line 6 and FIGS. 1-24. Duchane, by contrast, does not appear to provide any data that shows that “the successive steps of: grinding; fine grinding; and polishing” works. Duchane appears to suggest that the combination of such processes would not work. *See*

Duchane, col. 1, lines 47-50 (noting that “it is difficult to produce super-smooth surface finishes on polymers by mechanical means.”).

Additionally, Applicants’ claimed invention can be used either in the presence or absence of a nonsolvent. Duchane, on the other hand, appears to teach that the use of a nonsolvent is required to obtain a polished article:

An acrylic rod was immersed in pure acetone for 5 minutes, then removed, and allowed to dry. Immediately after removal from the acetone, the surface of the rod appeared to be smooth. However, the surface became microscopically undulating as the acetone evaporated. . . .

From the results in Example 1 and Example 3 (below), it appears that a nonsolvent is necessary to achieve a super-smooth surface. The nonsolvent allows the controlled extraction of the solvent from the substrate.

Id. at col. 8., lines 8-21. This is additional evidence that shows that there is no reasonable expectation of success that modifying or combining the cited art would work.

Because all three of the necessary elements required to establish a *prima facie* case of obviousness have not been established by the Action, the present obviousness rejection cannot be maintained. The rejection of claims 18-34 as being obvious over Duchane should be withdrawn.

D. Conclusion

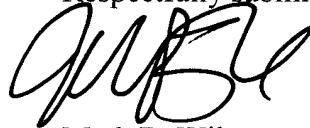
Applicants believe that the present document is a full and complete response to the Office Action dated January 2, 2004. The present case is in condition for allowance, and such favorable action is respectfully requested.

A Petition for a Three-Month Extension of Time:

Pursuant to 37 C.F.R. § 1.136(a), Applicants petition for an extension of time of three months to and including June 28, 2004, in which to respond to the Office Action dated January 2, 2004. Pursuant to 37 C.F.R. § 1.17, a check in the amount of \$950.00 is enclosed, which is the process fee for a three-month extension of time for a large entity status. If the check is inadvertently omitted, or should any additional fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to the enclosed materials, or should an overpayment be included herein, the Commissioner is authorized to deduct or credit said fees from or to Fulbright & Jaworski Deposit Account No. 50-1212/ESSR:062US.

The Examiner is invited to contact the undersigned Attorney at (512) 536-3035 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



Mark B. Wilson
Reg. No. 37,259
Attorney for Applicants

FULBRIGHT & JAWORSKI L.L.P.
600 Congress Avenue, Suite 2400
Austin, Texas 78701
512.536.3035 (voice)
512.536.4598 (fax)

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